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ABSTRACT

A study described the 1989-90 Chapter 1 Corrective Reading program, and evaluated the effectiveness of its implementation. The program provided supplementary reading and writing instruction to eligible students from 177 New York City nonpublic schools. Three modes of instruction (face-to-face, computer-assisted, or both) were provided to 9,698 1st- through 12th-grade students at a total of 180 leased neutral sites, public schools, mobile instructional units, and nondenominational schools. Data included information derived from program documents, data retrieval forms, observations of parent training workshops, interviews with program staff, and analyses of informal and standardized reading tests. A parent involvement program was initiated to assist parents in becoming involved in their children's education. Staff development consisted of nine formal conferences and regular outreach to teachers. Results of pre- and posttests indicated that: (1) students in nearly all grades, on most subtests, and in all three modes of instruction, met the program criterion for success, a statistically significant normal-curve-equivalent (NCE) gain; (2) students who received face-to-face instruction achieved higher NCE gains on all three subtests of the California Achievement Test (CAT) than those who received computer-assisted instruction; and (3) due to the small number of face-to-face and computer-assisted instruction students in grades 11 and 12 who took the Language Mechanics subtest of the CAT, it was not possible to conduct tests for statistical significance. (Fourteen tables of data are included; a brief description of Chapter 1 nonpublic school reimbursable programs for 1989-90 is attached.) (RS)

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OREA Report

CHAPTER 1 NONPUBLIC SCHOOL CORRECTIVE READING PROGRAM EVALUATION REPORT 1989-90

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BUREAU OF NONPUBLIC SCHOOL REIMBURSABLE SERVICES

CHAPTER 1 CORRECTIVE READING PROGRAM
1989-90

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CHAPTER 1 CORRECTIVE READING PROGRAM
1989-90
EXECUTIVE SUMMARY

BACKGROUND

The Corrective Reading program provided supplementary reading and writing instruction to Chapter 1-eligible students from 177 New York City nonpublic schools. Program staff consisted of one coordinator, four field supervisors, and 87 program teachers. The goal of the program was to improve students' reading and writing skills. During the 1989-90 school year, the program received approximately $10.7 million in funding.

DELIVERY OF SERVICES

On July 1, 1985, the Supreme Court ruled that instruction by public school staff on the premises of nonpublic schools was unconstitutional. Since the 1986-87 school year, students have received Chapter 1 services at public schools, leased neutral sites, mobile instruction units (M.I.U.s), and nondenominational schools. Chapter 1 services were expanded during the 1987-88 school year to provide computer-assisted instruction (C.A.I.) wherein teachers monitor student progress and provide instructional assistance via modems from a Board of Education administrative center.

PROGRAM OBJECTIVES

Students in grades two through twelve were expected to make statistically significant N.C.E. gains from pretest to posttest on standardized reading tests administered by the program. Students in grade one were expected to increase the frequency with which they perform certain reading readiness skills from pretest to posttest on the Corrective Reading Checklist--an informal assessment instrument.

EVALUATION METHODOLOGY

This evaluation report was based on information derived from program documents, data retrieval forms, observations of parent-training workshops, interviews with program staff, and analyses of informal and standardized reading tests. The impact of the Corrective Reading program on student achievement was determined by comparing pretest and posttest results on the Corrective Reading Checklist and on the Reading Comprehension, Language Mechanics, and Language Expression subtests of the California Achievement Test.

STUDENTS SERVED

In 1989-90, the Corrective Reading program served 9,698 students at 180 instructional sites. A total of 4,647 students received face-to-face instruction, 3,824 received C.A.I., and 1,218 received combined instruction. Nearly two-thirds of all students were in their first year of the program, more than one-fourth were in their second year, and less than one-tenth had participated in the program for three or more years. Diagnostic and counseling services were provided by the Clinical and Guidance program to 3,858 students.

Modes of Delivery

Chapter 1 services were delivered at 78 C.A.I. sites, 74 M.I.U.s, 16 public schools, nine leased neutral sites, and three nondenominational sites. An additional 47 C.A.I. and 24 combined instruction schools were brought on-line during the 1989-90 school year.

Pilot Computer Take-Home Project

The Pilot Computer Take-Home project began in March of the 1989-90 school year to evaluate the feasibility of delivering Chapter 1 services via take-home computer. A total of 61 students in grades two through eight were given laptop computers and instructional software. Chapter 1 teachers communicated with students and parents via electronic mail, ordinary mail, and by telephone. Due to the short duration of the instructional period, pretests and posttests were not administered, and achievement results not reported.

IMPLEMENTATION

The Parent Involvement Program

In 1988-89, the Parent Involvement program was initiated in response to the Chapter 1 requirement that schools involve parents in educating their children at home. The program served face-to-face students in grades one through three. It was expanded in 1989-90 to include students in grades four through twelve and extended to schools receiving computer-assisted instruction. The primary goal was to develop an appreciation for reading among students by exposing them to good literature at an early age and by involving parents in the education of their children. Teachers recruited parents, conducted parent-training workshops, and developed read-aloud kits containing parent-training materials, paperback books, school supplies, and exercises. Approximately 1,200 parents participated in the program, an increase of 59 percent over the previous year. The frequency of parental contact for students in grades nine through

twelve, however, was much lower than at the primary or intermediate level.

Staff Development

Staff development consisted of nine formal conferences and regular outreach to program teachers. Conference activities consisted primarily of lectures and demonstrations given by program staff, reading specialists, and Chapter 1 teachers, followed by whole and/or small group discussion. The principal areas of focus were the Parent Involvement program and the reading in content areas instructional approach. A monthly newsletter written by Chapter 1 teachers was utilized to share information and successful teaching strategies.

STUDENT ACHIEVEMENT

Students in nearly all grades, on most subtests, and in all three modes of instruction, met the program criterion for success, a statistically significant N.C.E. gain. Overall effect sizes were large and educationally meaningful. However, due to the small number of face-to-face and C.A.I. students in grades eleven and twelve who took the Language Mechanics subtest of the CAT, it was not possible to conduct tests for statistical significance. Students who received face-to-face instruction achieved higher N.C.E. gains on all three subtests of the California Achievement Test than those who received computer-assisted instruction.

RECOMMENDATIONS

- Teachers in the Parental Involvement program should make an effort to increase their contact with parents of students at the secondary school level.
- The Pilot Computer Take Home Project should be expanded to permit a valid evaluation of its effects.

ACKNOWLEDGEMENTS

This report was prepared by the Office of Research, Evaluation, and Assessment/Instructional Support Evaluation Unit of the New York City Board of Education. It was produced under the direction Frank Guerrero, the unit manager, and Joy Stevens, who served as evaluation specialist. In addition, Ilan Talmud analyzed the data on which this report is based, and Carol Meyer edited the final draft. John Ambrosio, an evaluation consultant, produced the written report.

The production of this evaluation report was the result of a collaborative effort of both full-time staff and consultants whose cooperation throughout the project was essential.

Additional copies of this report are available by writing to:

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INTRODUCTION

PROGRAM PURPOSE

The Corrective Reading program provides supplementary reading and writing instruction to Chapter 1-eligible students in New York City nonpublic schools. Students from participating nonpublic schools are taught in one of three modes: face-to-face instruction; computer-assisted instruction (C.A.I.); or combination services, i.e., face-to-face instruction combined with C.A.I. The primary objectives of the program are to improve students' reading and writing skills and increase their desire for learning.

ELIGIBILITY

Students are eligible for Chapter 1 services if they live in a targeted attendance area and score below a designated cutoff point on State mandated or standardized reading tests. Many nonpublic schools participating in Chapter 1 instructional programs use either the Scott-Foresman Test or the Comprehensive Test of Basic Skills (C.T.B.S) as their primary screening instrument.

Nonpublic school students must score at or below a specific cut-off score which represents the level of work a student is capable of doing to be eligible for Chapter 1 instructional programs. The designated cutoff point ranged from three months below grade level for students in grade one, to two or more years below grade level for students at the secondary level.

PROGRAM OBJECTIVES

The objectives for the 1989-90 Corrective Reading program were:

- students in grade one were expected to increase the number of variables for which they received higher level evaluations on the Corrective Reading Checklist from pretest to posttest, and
- students in grades two through twelve were expected to make statistically significant mean N.C.E. gains from pretest to posttest on standardized reading tests administered by the program.

PROGRAM EVALUATION

The purpose of the 1989-90 evaluation by the Office of Research, Evaluation, and Assessment/Instructional Support Evaluation Unit (OREA/I.S.E.U.) was to assess the implementation and efficacy of the 1989-90 Chapter 1 Corrective Reading program. The following evaluation methods were employed:

- analyses of data retrieval forms that report information such as grade placement, number of years in the program, participation in other Chapter 1 programs, and referrals to the Clinical and Guidance program;
- interviews with program staff and review of documents describing program organization, services provided, and staff development training;
- observations of parent training workshops in order to gather qualitative data on the implementation of the Parent Involvement program; and
- analyses of student scores on informal and standardized reading tests.

COMPONENTS OF THE REPORT

Program organization and implementation are described in Chapter I, student outcomes are presented in Chapter II, and

conclusions and recommendations are discussed in Chapter III. Appendix A provides a brief description of Chapter 1 Nonpublic School Reimbursable Services for 1989-90.

II. PROGRAM ORGANIZATION AND IMPLEMENTATION

PROGRAM ORGANIZATION

Program Funding and Staff

The Corrective Reading Program was funded at approximately $10.7 million for the 1989-90 school year. Program staff consisted of one coordinator, four field supervisors, and 87 program teachers.

The Supreme Court Ruling and Program Organization Since 1985

On July 1, 1985, the Supreme Court ruled that instruction or counseling by public school staff on the premises of nonpublic schools was unconstitutional. As a result, alternative means for providing Chapter 1 services were devised. Since the 1985-86 school year, eligible students attending nonpublic schools in New York City have received Chapter 1 services at public and non-denominational schools, leased neutral sites, and mobile instruction units (M.I.U.s). (Public and non-denominational school sites are designated classrooms in selected schools; leased neutral sites are classrooms in public buildings such as community centers; and mobile instructional units are mobile classrooms parked outside the nonpublic school being served.) In each case, students are either bused or escorted to the Chapter 1 site from their nonpublic school.

In 1987-88, Chapter 1 services were expanded to provide remedial instruction to some nonpublic school students via computer-assisted instruction (C.A.I.). C.A.I. sites were class rooms located in nonpublic schools used exclusively for C.A.I.

Chapter 1 teachers were not present in the classroom. Instead, they monitored student progress through the curriculum and provided instructional assistance via modems from a Board of Education administrative center. Non-instructional technicians operated equipment and maintained order at the site. Computer equipment located in the nonpublic school was non-divertible, that is, it was configured so that it could not be used for anything other than Chapter 1 instruction.

Students Served

During 1989-90, the Corrective Reading Program served a total of 9,689 students from 177 nonpublic schools: 4,647 students received face-to-face instruction; and 5,042 received either computer-assisted instruction (C.A.I.) or combination services. Nearly two-thirds of all Corrective Reading program students were in their first year of the program; more than one-fourth were in their second year; and less than ten percent were in the program for three or more years. Almost three-fourths of all Corrective Reading students were in grades two through six (see Table 1).

Modes of Delivery

The majority of students (more than 76 percent) receiving face-to-face instruction were located at 74 mobile instructional units (M.I.U.s). Of the remaining face-to-face students, 13 percent attended classes at 16 public schools, eight percent were taught at nine leased neutral sites, and two percent received instruction at three nondenominational sites. Classes were held

from one to five times a week for 30 to 60 minutes. Eighty-seven percent of all face-to-face students attended class at least twice a week, and more than one-half received 60 minutes of instruction per class.

C.A.I. Program Organization

C.A.I. was offered via two modes of instruction: C.A.I.-only or C.A.I. combined with face-to-face instruction. Nearly 76 percent of all C.A.I. students, from 78 nonpublic schools, received C.A.I.-only. They worked in Chapter 1 computer labs in their nonpublic schools from one to five days a week in classes lasting 20 to 45 minutes. More than 88 percent attended class at least twice a week, and more than 80 percent received at least 30 minutes of instruction per class.

Combination services students worked from one to five days per week in computer labs located in 25 nonpublic schools and attended classes lasting 20 to 40 minutes. They also received face-to-face instruction at public school sites and mobile instructional units (M.I.U.s) one to three days a week in classes lasting 30 to 60 minutes. More than 60 percent received C.A.I. at least twice a week, and more than three-fourths attended classes lasting at least 30 minutes. In addition, eighty-three percent received face-to-face instruction one day per week, and more than three-fourths received at least 45 minutes of instruction.

Clinical and Guidance Services

Students suffering from social or emotional problems that may have impeded their academic performance were referred to the Chapter 1 Clinical and Guidance program.** During the 1989-90 school year, diagnostic and counseling services were provided to approximately 40 percent of all students enrolled in the Corrective Reading program.

PROGRAM IMPLEMENTATION

Curricula

Face-to-Face Instruction. The curriculum varied according to grade level. For students in grade one, emphasis was placed on language concepts, vocabulary development, letter recognition, sound-symbol relationships, and auditory discrimination. In grades two through eight, language concepts, word recognition, comprehension skills, and the application of reading skills to subject areas were stressed. At the secondary school level, curricula focused on the comprehensive development of reading and writing skills, as well as reading skills in content areas.

Computer-Assisted Instruction. Nonpublic school principals selected one of five software packages provided by computer companies, either ESC, WICAT, CCC, PLATO, or CNS, for use in their respective schools. The curriculum varied by software package, but essentially followed the New York City reading curriculum. Nearly one-half of all students who received C.A.I.

**For a brief description of Chapter 1 Services, see Appendix A.

TABLE 1

Student Participation in the Corrective Reading Program by Grade and Number of Years in the Program, 1989-90

Grade	N[a]	%	Number of Years in the Program: 1 N	1 %	2 N	2 %	3 or more N	3 or more %
1	294	3.1	284	96.6	9	3.1[b]	1	0.3[b]
2	1449	15.1	1296	89.4	149	10.3	4	0.3[c]
3	1487	15.5	941	63.3	497	33.4	49	3.3
4	1668	17.3	941	56.4	537	32.2	190	11.4
5	1290	13.4	710	55.0	384	29.8	196	15.2
6	1208	12.6	649	53.7	343	28.4	216	17.9
7	990	10.3	626	63.2	249	25.2	115	11.6
8	577	6.0	326	56.5	194	33.6	57	9.9
9	287	3.0	278	96.9	8	2.8	1	0.3
10	213	2.2	169	79.3	43	20.2	1	0.5
11	102	1.0	56	54.9	40	39.2	6	5.9
12	54	0.5	24	44.4	28	51.9	2	3.7
Total	9,619	100%	6,300	65.5%	2,481	25.8%	838	8.7%

[a] Includes 4,647 students who received face-to-face instruction and 5,042 students who received computer-assisted instruction (C.A.I) or combination services. Data on grade and/or years in the program was missing for 79 students.

[b] Ten first grade students were held over; nine were in their second year, and one was in her/his third year of the program.

[c] Four second grade students were held over and in their third year of the program.

- Approximately two-thirds of all students were in their first year of the program.
- Nearly three-fourths of all students were in grades two through six.

by itself used ESC software, and nearly one-fourth used WICAT.More than 60 percent of all combination services students used ESC software (see Table 2).

Software packages differed with respect to instructional content and organization, but lesson sequences for all packages were determined by the difficulty level of the material. They also had a common principle of learning: a student must sufficiently master the information at one level of difficulty before moving on to the next. The level of mastery, and the teacher's ability to adjust the level of mastery required to move from one lesson or set of lessons to the next, varied according to software package. If a student consistently failed to meet the mastery criterion, or if the criterion was consistently exceeded, then the lesson sequences had to be adjusted by the Chapter 1 teacher.

THE PILOT COMPUTER TAKE-HOME PROJECT

Program Organization

In March of the 1989-90 school year, 61 students in grades two through eight, from 14 nonpublic schools, participated in the Pilot Computer Take-Home project. Students were supplied with laptop computers, and CCC instructional software. No printers were provided. Eligibility was limited to nonpublic schools with fewer than ten Chapter 1-eligible students. The project will be expanded during the 1990-91 school year, however, to include nonpublic schools which are already receiving Chapter 1 services for some, but not all, of their Chapter 1-eligible students.

TABLE 2

Participation in the Corrective Reading Program of Full-Year Computer-Assisted Instruction Students by Software Package, Mode of Instruction, and Grade, 1989-90[a]

Grade	WICAT		CCC		ESC		PLATO		CNS	
	CAI	C.S.	CAI	C.S.	CAI	C.S.	CAI	C.S.	CAI	C.S.
1	5	8	0	0	0	16	0	0	0	0
2	74	31	58	0	111	71	0	0	10	0
3	108	31	83	0	200	88	0	0	0	0
4	103	23	85	0	187	69	0	0	0	0
5	94	19	86	0	168	65	0	0	0	0
6	98	24	62	0	206	55	0	0	0	0
7	41	16	56	0	182	46	0	0	0	0
8	49	16	33	0	145	13	0	0	0	0
9	0	0	86	0	0	0	30	58	0	0
10	0	0	25	20	0	0	41	54	0	0
11	0	0	14	14	0	0	36	36	0	0
12	0	0	21	8	0	0	2	5	0	0
Subtotal	572	168	609	42	1,201	423	109	153	10	0
Total[b]	740		651		1,624		262		10	

[a] The two modes of delivery were computer-assisted instruction (C.A.I.) and combination services (C.S.), i.e., C.A.I. combined with face-to-face instruction.

[b] Data are reported for 3,287 students. Information on software package and mode of instruction was missing for 109 students.

- Nearly one-half of all C.A.I.-only students in grades one through twelve, and more than 60 percent of combination services students in grades one through eight, used ESC software.

- Nearly one-fourth of all C.A.I.-only students, and more than 16 percent of those receiving combination services, used WICAT software.

The objective of the program was to evaluate the feasibility of delivering Chapter 1 services via take-home computers. Students were expected to complete 20 work sessions per month, lasting approximately 20 minutes each. Since the instructional period lasted only four months, no standardized reading tests were administered, and achievement data was not available.

Software Packages and Curricula

The reading curricula, designed for students reading approximately one year below grade level, was divided into three integrated software packages: Reading for Comprehension, Revised; Basic Reading; and Critical Reading Skills. Students were placed in the reading curriculum according to the grade equivalent achieved during their initial enrollment in the CCC software.

Reading for Comprehension, Revised provides comprehensive practice in reading skills for students in grades three through eight. The course develops students' proficiency in the areas of word attack, literal comprehension, study skills, and passage comprehension. Courses are organized into strands, or sequential exercises. As students complete each exercise, the software's Individual Placement Motion (IPM) function automatically updates the student's performance record and selects the appropriate set of exercises for the achievement level mastered, thus ensuring a high degree of individualization. The IPM is operative for the student's first ten sessions. Thereafter, Chapter 1 teachers must monitor student progress and adjust the level of difficulty as needed.

The Basic Reading software package provides individualized drill and practice in second grade reading skills for students in grades two to three. The course is designed for beginning and remedial readers who require basic high-frequency vocabulary, strict attention to syntax and sentence patterns, and variety in content and formats for motivation and retention of knowledge. The course is organized into six different strands. Exercises are based on original stories and paragraphs, and allow for a smooth transition to the more advanced Reading for Comprehension, Revised course. Critical Reading Skills provides instruction in vocabulary skills and reading comprehension.

Monitoring Student Progress

All three instructional programs offer software generated course reports which provide both a current and cumulative record of students' work. Course reports provide current information in terms of student performance on individual strands as well as an average overall achievement score for each session. They also provide a cumulative record which includes the total number of work sessions completed, the total time on task, and the total number of questions attempted and answered correctly.

Summary course reports give teachers a cumulative record of the average overall achievement level for individual students and the instructional group as a whole. The Reading Comprehension, Revised software summary report, for example, lists the average overall achievement level for each student at enrollment, after completing the first ten sessions, and for the most current session attempted. This allows Chapter 1 teachers to monitor the

progress of students through the curriculum and to identify those experiencing difficulty.

Teacher Contact

Teachers utilized three primary methods of communicating with parents and students: electronic mail, telephone, and ordinary mail. They sent notes of support to students and asked parents to continue encouraging them to work. They also mailed storybooks and worksheets to sustain students' interest and motivation. Principals were periodically appraised of students' progress by Chapter 1 teachers.

STAFF DEVELOPMENT TRAINING

The primary purpose of staff development training was to improve the instructional efficacy of teachers by introducing them to innovative pedagogical techniques.

In 1989-90, staff development training consisted of a series of nine all-day conferences during which program staff, reading specialists, and Chapter 1 teachers presented a variety of new instructional strategies and shared successful teaching methods. Presentations usually consisted of a lecture or demonstration, followed by whole and/or small group discussion.

The primary focus of staff development activities was the Parent Involvement program. The expansion of the Read Aloud program in 1989-90 from grades one through three, to one through five, required that teachers be trained on an ongoing basis. Early in the school year, program administrators conducted a staff development conference to appraise Chapter 1 teachers of the current status and future trajectory of the Parent

Involvement program. Later in the school year, four Chapter 1 teachers presented their ideas on various approaches to conducting successful parent-training workshops.

The second major focus of staff development activities centered on developing the reading in content areas approach as a key instructional strategy. This method is based on the idea that reading is fundamental to learning, and that in order to succeed in school, students must develop higher order reading and critical thinking skills. Two subject areas, social studies and science, were given special priority. In addition, reading material about Native Americans was integrated into the social studies curriculum in an effort to promote a multi-cultural perspective.

Furthermore, one all-day staff development conference was devoted entirely to presentations made by Chapter 1 teachers. A total of ten presentations were given on a variety of topics ranging from "Utilizing M.I.U. Space" to "Developing a Positive Self-Image Through Autobiographical Writing." This annual conference provides Chapter 1 teachers with a forum in which they can share valuable classroom experience and successful instructional strategies with their colleagues.

THE PARENTAL INVOLVEMENT PROGRAM

Read Aloud Program

In 1988-89, the Parent Read-Aloud program was initiated in grades one through four in response to a federal directive requiring schools to involve parents in educating their children at home. In 1989-90, the program was expanded to include

students in grade five, and was extended to nonpublic schools receiving computer-assisted instruction (C.A.I.) or combination services.

The program's primary objective was to increase student achievement by means of recreational reading. Chapter 1 teachers recruited parents, conducted parent-training workshops, and helped develop read-aloud take-home kits. Parent-training workshops, lasting 30 to 60 minutes, were held every four to six weeks.

Participation in the Read Aloud program increased from 756 in 1988-89 to more than 1,200 in 1989-90, an increase of nearly 59 percent.

Observations of Parent-Training Workshops

In June 1990, OREA observers attended two parent-training workshops--one in a public school auditorium, the other in a mobile instructional unit (M.I.U.). Both workshops were held before the start of the school day to make it convenient for parents to attend. Overall participation was not accurately reflected in the relatively small number, less than ten, of parents present at the workshops observed by OREA, due to conflicts with other end-of-the-year school activities.

In both instances, teachers spoke with parents individually before the workshop began to discuss each child's progress and to identify specific problems. They then proceeded to congratulate parents as a group for their participation, and for making the program a success. In one workshop, the teacher handed out VIP (Very Important Parent) awards to reinforce the importance of

parents' continued commitment. Teachers then read poems and short stories aloud, which contained themes highlighting the concept of reading as a shared learning/loving experience, in order to demonstrate how a child feels as a listener. At one school, a parent-participant served as a translator for other parents whose primary language was Spanish.

Teachers repeatedly stressed that parents should read the storybooks to themselves prior to reading them aloud with their children. One teacher suggested that parents might feel more secure by practicing reading aloud to one another. Because many parents were either predominantly Spanish speaking or had limited literacy skills, teachers emphasized that it was not necessary to pronounce each word correctly, but to maintain the flow of the story and avoid repeated interruptions. The primary purpose of reading aloud, they were told, was to increase the child's reading comprehension. Thus, teachers instructed parents to jump over difficult words to avoid having the child forget the storyline and lose interest.

Various instructional materials were provided to parents including: take-home kits which contained parent-training materials, paperback books, school supplies, and optional exercises unrelated to classroom instruction designed to be both fun and instructive, large colorful buttons which said "Take Time to Read to Your Child Today", lollypop bookmarks which said "Make Friends with Books", summer "activity packets" which listed libraries, museums, and recreational activities, by borough, and contained a bibliography of children's books for summer reading,

a read-aloud handbook offering guidelines for reading to children at home, and a mimeographed cartoon illustrating various read-aloud techniques. In addition, parents were shown a copy of the Read-Aloud Handbook and encouraged to utilize it as a resource for identifying and locating appropriate reading materials for their children.

Modes of Parental Contact

Data retrieval forms were used to gather information on the seven modes of parental contact reported by teachers. Overall, 4.2 percent of all parents had telephone contact with Chapter 1 teachers, 14 percent met with the Chapter 1 teacher, 53.6 percent received a student progress report, 3.3 percent attended an orientation meeting, 12.3 percent attended a read-aloud workshop, and 2.4 percent attended a parent-training workshop (see Table 3). The frequency of parental contact dropped sharply at the secondary school level.

TABLE 3

Frequency of Parental Contact with Chapter 1 Teachers in the Parental Involvement Program, by Mode of Contact and Grade, 1989-90

Grade	N[a]	Telephone	Meeting	Progress Report	Orientation Meeting	Read-at-Home Workshop	Parent Training
1	288	7.6	29.5	62.5	4.5	26.4	5.3
2	1,263	5.3	22.3	60.8	6.3	25.4	3.6
3	1,328	4.3	20.2	60.2	5.0	24.1	5.2
4	1,514	6.1	18.5	56.4	3.2	19.1	3.0
5	1,154	4.4	10.1	62.1	2.5	2.7	1.7
6	1,122	3.9	10.2	53.7	3.1	2.1	1.4
7	907	1.7	4.5	46.6	1.3	0.3	0.2
8	553	3.1	4.7	39.1	0.7	0.0	0.0
9	200	0.0	0.0	7.0	0.0	0.0	0.0
10	179	0.0	0.0	13.3	0.0	0.0	0.0
11	101	1.0	1.0	20.8	0.0	0.0	0.0
12	54	1.9	0.0	44.4	0.0	0.0	0.0
Total	8,663	4.2	14.0	53.6	3.3	12.3	2.4

[a] Indicates the number of students whose parents participated in the program. Since many parents engaged in more than one mode of contact, the count was duplicated.

- Parental involvement was highest in grades one through six, and declined as the grade level of students increased.
- Approximately one-fourth of all children in grades one through four had parents who attended a Read Aloud workshop.

III. STUDENT OUTCOMES

ATTENDANCE

More than 90 percent of all students received five or more months of instruction and were thus considered full-year program participants. The overall average attendance for 1989-90, as reported by program administrators, was 91 percent.

METHODS USED TO EVALUATE STUDENT ACHIEVEMENT

In 1989-90, the Stanford Early School Achievement Test was replaced by the Corrective Reading Checklist, an informal assessment instrument which uses a three stage scale (i.e., not yet, sometimes, most of the time) to rate the frequency with which students in grade one are able to perform certain reading readiness skills. Student performance on the Corrective Reading Checklist is measured in terms of the degree of frequency teachers assign to 33 variables. Achievement results are reported both in terms of the absolute number of students who received a particular assessment on one or more of the variables, and the mean and median number of variables for which they received such an evaluation.

In grades two through twelve, the impact of the Corrective Reading Program on student achievement was determined by comparing the results of standardized reading tests against the program's objective, a statistically significant mean N.C.E. gain between pretest and posttest. Students in grades two through twelve took the Reading Comprehension, Language Mechanics, and Language Expression subtests of the California Achievement Test.

Pretests were administered in fall 1989 and posttests in spring 1990.

Students' raw scores on standardized reading tests were organized by grade and converted to normal curve equivalents (N.C.E.s).* Statistical analyses were then performed on the converted N.C.E. scores and correlated t-tests were used to determine whether or not mean N.C.E. gains were statistically significant. The relevance of statistically significant mean N.C.E. gains vary according to the size of the groups being compared and do not indicate whether they are actually important to the students' educational development. Therefore, an effect size (E.S.)** is reported for each mean difference to indicate whether each mean N.C.E. gain or loss was educationally meaningful.

Achievement by Mode of Instruction. Student scores were also organized by mode of instruction: face-to-face, C.A.I., and combination services. Analyses of variance and covariance were performed to determine whether face-to-face, C.A.I., or

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*Normal curve equivalent scores are similar to percentile ranks, but unlike percentile ranks, are based on an equal interval scale ranging from 1 to 99, with a mean of 50 and a standard deviation of approximately 21. Because N.C.E. scores are equally spaced, mathematical and statistical calculations such as averages are meaningful. In addition, comparisons of N.C.E. scores may be made across different achievement tests.

**The effect size, developed by Jacob Cohen, is the ratio of the mean gain to the standard deviation of the gain. This ratio provides an index of improvement irrespective of the size of the sample. According to Cohen, .2 is a small effect size, .5 is a moderate effect size, and .8 is a large effect size. Only effect sizes of .8 and above are considered educationally meaningful.

combination services instruction produced the highest mean N.C.E. gains.

ACHIEVEMENT FINDINGS

Face-to-Face: First Grade. Table 4 presents the results of student achievement on the Corrective Reading Checklist.

Not Yet: From Pretest and Posttest.

- Pretest results show that 156 out of 195, or approximately 80 percent, of all students who took the Corrective Reading Checklist received one or more "not yet" evaluations.

- Posttest results indicate that 100 out of 193, or approximately 51.8 percent of all students who took the Corrective Reading Checklist received one or more "not yet" evaluations on the posttest. The decline in the number of students, nearly 22 percent, who received such evaluations indicates an increase in student achievement. In addition, the mean and median number of variables decreased, indicating that students who received one or more "not yet" ratings did so on a smaller number of variables.

Sometimes: From Pretest to Posttest.

- Pretest achievement results indicate that 134 out of 195, or 68.7 percent, of all students who took the Corrective Reading Checklist received one or more "sometimes" evaluations.

- Posttest results show that 165 out of 195, or 84.6 percent, of all students who took the Corrective Reading Checklist received one or more "sometimes" evaluations. The increase in the number of students, approximately 16 percent, who received such evaluations indicates a rise in student achievement (given the decline in the number of students who received "not yet" evaluations on the posttest). In addition, both the mean and median increased, indicating a rise in the number of variables for which students received "sometimes" evaluations.

Most of the Time: From Pretest to Posttest.

- Pretest achievement results indicate that 159 out of 195, or nearly 82 percent, of all students who took the Corrective Reading Checklist received one or more "most of the time" evaluations.

- Posttest achievement results show that 170 out of 195, or more than 87 percent, of all students who took the Corrective Reading Checklist received one or more "most of the time" evaluations. The increase in the number of students, approximately 5 percent, who received such evaluations indicates a rise in student achievement. However, both the mean and median decreased, indicating that a greater number of students were achieving "most of the time" evaluations on a relatively smaller number of variables.

- In summary, first grade students who received face-to-face instruction reduced the number of "not yet" evaluations from pretest to posttest by 22 percent increased the number of "sometimes" evaluations by 16 percent and increased the number of "most of the time" evaluations by 5 percent.

Face-to-Face: Grades Two Through Twelve

Reading Comprehension. Table 5 presents the results of student achievement, by grade, on the Reading Comprehension subtest of the California Achievement Test. The overall mean gain of 13.9 N.C.E.s was statistically significant and represented a large and educationally meaningful effect size.

Language Mechanics. Table 6 presents the results of student achievement, by grade, on the Language Mechanics subtest of the California Achievement Test. The overall mean gain of 9.9 N.C.E.s was statistically significant and represented a moderate effect size.

Language Expression. Table 7 presents the results of student achievement, by grade, on the Language Expression subtest of the California Achievement Test. The overall mean gain of 10.1 N.C.E.s was statistically significant and represented a moderate effect size.

TABLE 4

Total Score on the Corrective Reading Checklist by Full-Year Face-to-Face Corrective Reading Program Students in Grade One, 1989-90

Rating	Pretest			Posttest			Difference		
	N[a]	Mean	Median	N	Mean	Median	N	Mean	Median
Not Yet	156	6.8	7.0	100	3.8	1.0	-54	-3.0	-6.0
Sometimes	134	6.1	5.0	165	9.9	10.0	31	3.8	5.0
Most of-the Time	159	15.7	18.0	170	11.4	10.0	11	-4.3	-8.0

[a] Indicates the number of students who received one or more ratings for each level of achievement. The total number of students evaluated was 195.

TABLE 5

Mean N.C.E. Differences on the Reading Comprehension Subtest of the CAT by Full-Year Face-to-Face Students in the Corrective Reading Program by Grade, 1989-90

Grade	N	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Difference Mean[a]	Difference S.D.	Effect Size
2	687	20.7	12.6	34.7	13.3	14.0	14.5	1.0
3	630	20.1	12.6	36.4	13.2	16.3	12.8	1.3
4	755	20.9	11.8	36.0	10.5	15.1	10.6	1.4
5	533	23.2	11.0	34.1	10.7	11.0	8.7	1.3
6	430	24.8	13.4	36.9	10.4	12.1	10.6	1.1
7	270	30.2	10.1	40.8	9.1	10.6	8.7	1.2
8	133	29.2	11.0	39.7	10.6	10.5	8.3	1.3
9	53	8.7	12.1	32.2	11.2	23.5	14.4	1.6
10	43	7.3	12.5	34.3	15.5	27.0	17.3	1.6
11	7	9.1	6.6	26.6	9.9	17.4	6.8	2.6
12	5	10.2	8.7	25.2	5.8	15.0	8.6	1.7
Total	3,546	22.2	12.7	36.0	11.7	13.9	11.9	1.2

[a] Mean differences were statistically significant at the $p \leq .05$ level.

- The overall mean gain of 13.9 N.C.E.s was statistically significant and represented a large and educationally meaningful effect size.
- All mean gains were statistically significant and ranged from 10.5 N.C.E.s for grade eight to 27.0 N.C.E.s for grade ten.
- All effect sizes were large and educationally meaningful.

TABLE 6

Mean N.C.E. Differences on the
Language Mechanics Subtest of the CAT
by Full-Year Face-to-Face Students in the
Corrective Reading Program by Grade, 1989-90

Grade	N	Pretest		Posttest		Difference		Effect
		Mean	S.D.	Mean	S.D.	Mean[a]	S.D.	Size
2	687	18.7	16.2	31.7	17.7	13.0	19.7	0.7
3	630	24.8	15.5	35.6	15.8	10.8	15.5	0.7
4	751	29.5	17.5	38.4	17.1	8.9	17.9	0.5
5	529	28.5	15.9	36.9	16.0	8.4	15.9	0.5
6	426	32.4	16.9	41.2	16.8	8.8	16.3	0.5
7	268	38.2	15.1	44.4	15.2	6.3	14.0	0.5
8	132	39.4	14.2	42.6	14.5	3.2	12.1	0.3
9	52	12.5	17.7	33.5	15.3	21.1	18.3	1.2
10	42	9.4	16.1	35.3	13.3	25.9	19.7	1.3
11	7	21.9	9.8	27.7	10.2	6.4[b]	15.0	0.5
12	5	23.0	19.1	28.0	17.1	5.0[b]	29.2	0.2
Total	3,529	27.3	17.5	37.2	16.9	9.9	17.3	0.6

[a] Mean differences were statistically significant at the $p \leq .05$ level.

[b] Mean gains were not statistically significant.

- The overall mean gain of 9.9 N.C.E.s was statistically significant and represented a moderate effect size.
- Except for grades eleven and twelve, all mean gains were statistically significant and ranged from 3.2 N.C.E.s for grade eight to 25.9 N.C.E.s for grade ten.
- Effect sizes for grades nine and ten were large and educationally meaningful. All other effect sizes were small to moderate.

TABLE 7

Mean N.C.E. Differences on the
Language Expression Subtest of the CAT
by Full-Year Face-to-Face Students in the
Corrective Reading Program by Grade, 1989-90

Grade	N	Pretest		Posttest		Difference		Effect
		Mean	S.D.	Mean	S.D.	Mean[a]	S.D.	Size
2	686	22.4	12.5	32.8	15.4	10.4	15.6	0.7
3	629	21.6	14.6	35.0	15.6	13.4	15.1	0.9
4	752	26.3	14.7	35.8	13.8	9.5	14.0	0.7
5	531	24.8	13.2	33.2	13.7	8.4	13.1	0.6
6	428	28.5	14.3	37.5	13.6	8.9	13.3	0.7
7	268	35.0	12.2	41.4	13.0	6.5	11.7	0.6
8	130	32.8	10.7	37.8	12.4	4.9	11.3	0.4
9	53	10.1	13.3	28.6	12.7	18.5	15.0	1.2
10	43	7.6	13.1	31.4	15.7	23.8	18.5	1.3
11	7	17.6	12.5	28.4	8.4	10.9	7.0	1.6
12	5	7.2	13.9	29.8	7.5	22.6	11.0	2.1
Total	3,532	25.1	14.4	35.2	14.5	10.1	14.4	0.7

[a] Mean differences were statistically significant at the $p \leq .05$ level.

- The overall mean gain of 10.1 N.C.E.s was statistically significant and represented a moderate effect size.
- All mean gains were statistically significant and ranged from 4.9 N.C.E.s for grade eight to 23.8 N.C.E.s for grade ten.
- Effect sizes for grades three, nine, ten, eleven, and twelve were large and educationally meaningful. All other effect sizes were moderate, except for grade eight, which was small.

Computer-Assisted Instruction and Combination Services: Grade One

Table 8 presents the results of student achievement on the Corrective Reading Checklist.

Not Yet: From Pretest to Posttest.

- Pretest achievement results show that 41 out of 64, or approximately 64 percent, of all students who took the Corrective Reading Checklist received one or more "not yet" evaluations.

- Posttest achievement results indicate that 23 out of 64, or approximately 36 percent, of all students received one or more "not yet" evaluations. The decline in the number of students, 28 percent, who received such evaluations, and in the mean and median number of variables, indicates a rise in student achievement.

Sometimes: From Pretest to Posttest.

- Pretest achievement results indicate that 29 out of 64, or more than 45 percent, of all students who took the Corrective Reading Checklist received one or more "sometimes" evaluations.

- Posttest achievement results show that 34 out of 64, or approximately 53 percent, of all students received one or more "sometimes" evaluations. The increase in the number of students, approximately 8 percent, who received such evaluations indicates a rise in student achievement (given the 28 percent decline in the number of students who received "not yet" evaluations on the posttest). In addition, both the mean and median increased, indicating that a greater number of students received "sometimes" evaluations on a larger number of variables.

Most of the Time: From Pretest to Posttest.

- Pretest achievement results show that 44 out of 64, or approximately 69 percent, of all students who took the Corrective Reading Checklist received one or more "most of the time" evaluations.

- Posttest achievement results show that 43 out of 64, or approximately 68 percent, of all students received one or more "most of the time" evaluations. The decrease in the number of students, less than 1 percent, who received such evaluations indicates a small decline in achievement. In addition, both the mean and median decreased, indicating that fewer numbers of students

achieved "most of the time" evaluations on a smaller number of variables.

- In summary, for computer-assisted instruction, the number of students who received one or more "not yet" evaluations on the posttest declined by 28 percent the number who received "sometimes" evaluations increased by 8 percent and the number who received "most of the time" evaluations decreased by less than 1 percent.

Computer-Assisted Instruction: Grades Two Through Twelve

Reading Comprehension. Table 9 presents the results of student performance, by grade, on the Reading Comprehension subtest of the California Achievement Test. The overall mean gain of 10.4 N.C.E.s was statistically significant and represented a large and educationally meaningful effect size.

Language Mechanics. Table 10 presents the results of student achievement, by grade, on the Language Mechanics subtest of the California Achievement Test. The overall mean gain of 5.0 N.C.E.s was statistically significant and represented a small effect size.

Language Expression. Table 11 presents the results of student achievement, by grade, on the Language Expression subtest of the California Achievement Test. The overall mean gain of 5.4 N.C.E.s was statistically significant and represented a small effect size.

Achievement by Mode of Instruction

Grades Two Through Twelve. Table 12 presents the results of student achievement, by mode of instruction, on the Reading Comprehension, Language Mechanics, and Language Expression subtests of the California Achievement Test. Students who received face-to-face instruction scored higher mean N.C.E. gains

TABLE 8

Total Score on the Corrective Reading Checklist by Full-Year C.A.I. and Combination Services Students in the Corrective Reading Program, 1989-90

Rating	Pretest			Posttest			Difference		
	N[a]	Mean	Median	N	Mean	Median	N	Mean	Median
Not Yet	41	6.5	4.0	23	4.0	0.0	-18	-2.5	-4.0
Sometimes	29	5.0	0.0	34	9.5	3.0	5	4.5	3.0
Most of the Time	44	13.2	16.0	43	12.1	10.5	-1	-1.1	-6.0

[a] Indicates the number of students who received one or more ratings for each level of achievement. The total number of students evaluated was 64.

TABLE 9

Mean N.C.E. Differences on the
Reading Comprehension Subtest of the CAT
by Full-Year Computer-Assisted Instruction Students
in the Corrective Reading Program by Grade, 1989-90

		Pretest		Posttest		Difference		Effect
Grade	N	Mean	S.D.	Mean	S.D.	Mean[a]	S.D.	Size
2	543	23.3	13.1	33.7	14.2	10.3	14.9	0.7
3	615	22.4	12.9	34.0	14.2	11.7	12.0	1.0
4	700	23.1	12.7	33.0	12.0	9.9	10.0	1.0
5	579	22.5	10.7	32.6	10.9	10.1	9.2	1.1
6	615	24.1	13.3	35.9	11.2	11.9	11.0	1.1
7	553	28.6	11.3	37.6	9.8	8.9	8.7	1.0
8	329	27.8	11.2	37.7	10.3	10.0	8.5	1.2
9	151	26.3	9.9	34.1	9.9	7.9	9.3	0.8
10	123	30.9	12.0	42.3	12.7	11.4	11.1	1.0
11	70	27.8	10.0	39.7	11.8	11.9	10.1	1.2
12	19	26.5	11.1	32.8	8.7	6.3	8.8	0.7
Total	4,297	24.6	12.4	34.9	12.2	10.4	10.9	1.0

[a] Mean differences were statistically significant at the $p \leq .05$ level.

- The overall mean gain of 10.4 N.C.E.s was statistically significant and represented a large and educationally meaningful effect size.
- Mean gains for all grades were statistically significant and ranged from 6.3 N.C.E.s for grade twelve to 11.9 N.C.E.s for grades six and eleven.
- All effect sizes were large and educationally meaningful, except for grades two and twelve, which were moderate.

TABLE 10

Mean N.C.E. Differences on the
Language Mechanics Subtest of the CAT by
Full-Year Computer-Assisted Instruction Students
in the Corrective Reading Program by Grade, 1989-90

Grade	N	Pretest		Posttest		Difference		Effect
		Mean	S.D.	Mean	S.D.	Mean[a]	S.D.	Size
2	532	22.3	17.0	29.8	17.6	7.6	19.0	0.4
3	610	25.6	15.3	31.0	15.5	5.4	13.6	0.4
4	687	30.5	16.2	35.2	16.1	4.6	14.9	0.3
5	573	29.6	15.1	34.2	15.8	4.7	15.2	0.3
6	609	34.0	16.2	38.5	17.1	4.4	14.2	0.3
7	544	35.5	16.7	40.6	15.2	5.2	14.7	0.4
8	323	38.0	16.4	42.6	16.0	4.7	14.4	0.3
9	143	37.7	12.7	40.6	11.7	2.9	9.6	0.3
10	122	37.6	16.1	39.9	13.7	2.4	12.7	0.2
11	69	43.7	15.3	45.3	13.1	1.6[b]	12.1	0.1
12	17	42.6	15.6	44.6	12.7	1.9[b]	12.1	0.2
Total	4,229	31.1	16.8	36.0	16.5	5.0	15.0	0.3

[a] Mean differences were statistically significant at the $p \leq .05$ level.

[b] Mean gains were not statistically significant.

- The overall mean gain of 5.0 N.C.E.s was statistically significant and represented a small effect size.
- Except for grades eleven and twelve, all mean gains were statistically significant and ranged from 2.4 N.C.E.s for grade ten to 7.6 N.C.E.s for grade two.
- All effect sizes were small.

TABLE 11

Mean N.C.E. Differences on the
Language Expression Subtest of the CAT by
Full-Year Computer-Assisted Instruction Students
in the Corrective Reading Program by Grade, 1989-90

		Pretest		Posttest		Difference		Effect
Grade	N	Mean	S.D.	Mean	S.D.	Mean[a]	S.D.	Size
2	540	24.4	13.5	31.0	17.6	6.6	16.4	0.4
3	610	23.5	14.9	30.7	16.0	7.2	15.1	0.5
4	694	26.2	13.8	31.1	13.4	4.9	13.9	0.4
5	575	24.6	13.4	30.5	13.5	5.9	13.7	0.4
6	610	27.4	13.4	33.0	14.2	5.6	13.2	0.4
7	545	31.9	13.4	36.2	13.0	4.2	12.0	0.4
8	328	30.8	12.6	34.9	13.0	4.1	12.7	0.3
9	145	31.8	11.2	34.6	11.4	2.8	10.7	0.3
10	124	32.2	12.7	36.4	12.5	4.2	11.1	0.4
11	70	37.0	11.8	37.7	13.1	0.7	10.6	0.1
12	17	30.9	13.9	36.2	10.9	5.3	8.3	0.6
Total	4,258	27.2	13.9	32.6	14.5	5.4	13.8	0.4

[a] Mean differences were statistically significant at the $p \leq .05$ level.

- The overall mean gain of 5.4 N.C.E.s was statistically significant and represented a small effect size.
- All mean gains were statistically significant and ranged from 0.7 N.C.E.s for grade eleven to 7.2 N.C.E.s for grade three.
- All effect sizes were small, except for grades three and twelve, which were moderate.

TABLE 12

Comparison of Overall Mean N.C.E. Differences on the Subtests of the CAT by Full-Year Students in the Corrective Reading Program by Mode of Instruction, 1989-90

Subtest	Face-to-Face			C.A.I. only			Combination Services		
	N	Mean Gain[a]	S.D.	N	Mean Gain[a]	S.D.	N	Mean Gain[a]	S.D.
Reading Comprehension	3546	13.9	11.9	3199	10.3	10.8	1098	10.5	11.3
Language Mechanics	3529	9.9	17.3	3144	5.0	14.8	1085	5.0	15.3
Language Expression	3532	10.1	14.4	3168	5.0	13.6	1090	6.4	14.4

[a] All mean differences were statistically significant at the $p \leq .05$ level.

- Analyses of variance and covariance demonstrate that, on all three subtests of the CAT, students in grades two through twelve who received face-to-face instruction achieved mean gains that were significantly higher than those who received C.A.I. only or combination services.

- Students in grades two through twelve who received face-to-face instruction or combination services achieved significantly higher mean gains on the Language Expression subtest of the CAT than students who received C.A.I. only.

on all three subtests of the CAT than those who received C.A.I. or combination services.

COMPARISON WITH PAST YEARS

Face-to-Face Instruction

Grades Two Through Twelve Over Five Years: 1985-86 to 1989-90. Table 13 presents the results of overall student achievement, over a five year period, on the Reading Comprehension subtest of the California Achievement Test. The mean gain of 12.5 N.C.E.s in 1988-89, and 12.0 N.C.E.s in the 1989-90 school year met the program criterion for success, a statistically significant N.C.E. gain.

Computer-Assisted Instruction

Grades Two Through Twelve Over Two Years: 1988-89 to 1989-90. Table 14 presents the results of overall student achievement, for a two year period, on the Reading Comprehension subtest of the California Achievement Test. All mean N.C.E. gains were statistically significant.

PILOT COMPUTER TAKE-HOME PROJECT

Since students enrolled in the program received fewer than four months instruction, and were not pretested or posttested with standardized reading tests, achievement data cannot be reported.

TABLE 13

Mean N.C.E. Differences of Full-Year Students in Grades Two Through Twelve in the Corrective Reading Program on the Reading Comprehension Subtest of the CAT, 1985-86 to 1989-90

Year	Number of Students[a]	Mean Gain[b]	Standard Deviation	Effect Size
1985-86	10,045	10.8	14.8	0.7
1986-87	5,743	11.8	15.6	0.8
1987-88[d]	4,516[c]	4.6	16.3	0.3
1988-89	7,943[c]	12.5	13.1	1.0
1989-90	7,843[c]	12.0	11.5	1.0

[a] The number of participants was affected by the 1985 Supreme Court decision restricting services delivered at nonpublic school sites.

[b] Mean gains were statistically significant at the $p \leq .05$ level.

[c] Includes face-to-face and C.A.I. students.

[d] In 1987-88, the CAT was re-normed.

- Achievement results for the 1985-86 and 1986-87 school years met the program criterion for success, a mean gain of five N.C.E.s. The mean gain of 12.5 N.C.E.s in 1988-89, and 12.0 N.C.E.s in 1989-90, also met the program criterion for success, a statistically significant mean N.C.E. gain. Thus, over the six year period, except for the 1987-88 school year in which the CAT was re-normed, student achievement consistently met the program criterion for success.

TABLE 14

Mean N.C.E. Differences of Full-Year Computer-Assisted Instruction Students in Grades Two Through Twelve in the Corrective Reading Program on the Subtests of the CAT, Over Two Years, 1988-89 to 1989-90

Subtest	Year	N	Mean Gain[a]	S.D.	Effect Size
Reading Comprehension	1988-89	2,713	7.8	12.5	0.6
	1989-90	4,297	10.4	10.9	1.0
Language Mechanics	1988-89	2,695	4.2	14.9	0.3
	1989-90	4,229	5.0	15.0	0.3
Language Expression	1988-89	2,692	5.7	13.4	0.4
	1989-90	4,258	5.4	13.8	0.4

[a] Mean gains were statistically significant at the $p \leq .05$ level.

- All mean gains were statistically significant. Students who received C.A.I. during the 1989-90 school year achieved significantly higher mean gains on the Reading Comprehension and Language Mechanics subtests of the CAT than those who received C.A.I. in 1988-89.
- Effect sizes were small on the Language Mechanics and Language Expression subtests of the CAT for both the 1988-89 and 1989-90 school years. On the Reading Comprehension subtest, they were moderate in 1988-89, and large and educationally meaningful in 1989-90.

IV. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The Parent Involvement Program

The Parent Involvement program was successful in expanding participation by approximately 59 percent. The frequency of parental contact via the seven modes reported by teachers, however, dropped sharply at the secondary level.

Student Achievement

Students in nearly all grades, on most subtests, and in all three modes of instruction, met the program criterion for success, a statistically significant mean N.C.E. gain. Overall effect sizes were large and educationally meaningful. However, due to the small number of face-to-face and C.A.I. students in grades eleven and twelve who took the Language Mechanics subtest of the CAT, it was not possible to conduct tests for statistical significance. Students who received face-to-face instruction achieved higher N.C.E. gains on all three subtests of the California Achievement Test than those who received computer-assisted instruction, both C.A.I.-only and combination services.

RECOMMENDATIONS

- An effort should be made to increase contact with parents of students at the secondary school level.
- The Pilot Computer Take Home Project should be expanded to permit a valid evaluation of its effects.

APPENDIX A

Brief Description of Chapter I Nonpublic School Reimbursable Programs, 1989-90

Chapter I Nonpublic School Reimbursable programs provide supplementary, individualized instruction to students attending nonpublic schools in New York City. Students are eligible for Chapter I services if they live in a targeted attendance area and score below a designated cutoff point on State-mandated standardized reading tests.

On July 1, 1985, the Supreme Court held that instruction by public school teachers on the premises of nonpublic schools--local educational agencies' most common method of serving Chapter I-eligible children, was unconstitutional. As a result, alternative methods for providing Chapter I services to eligible nonpublic school students were devised. Students attending nonpublic schools now receive Chapter I services at mobile instruction units, public school sites, leased neutral sites, nondenominational schools, and via computer-assisted instruction in designated classrooms in nonpublic schools.

CORRECTIVE READING PROGRAM

The Corrective Reading program provides instruction in reading and writing. The goal is to enable students to reach grade level in reading. During 1989-90, the program served 9,689 students in grades one through twelve in 177 nonpublic schools. The total included 3824 students receiving computer-assisted instruction and 4647 students receiving face-to-face instruction. In addition, 1,218 students received a combination of services. Program staff included one coordinator, four field supervisors, and 87 Corrective Reading teachers. Instruction was provided to small groups of students, one to five days a week, in sessions lasting 20 to 60 minutes. Chapter I funding totaled $10.7 million.

READING SKILLS CENTER PROGRAM

The Reading Skills Center program provides instruction in reading and writing to students in grades four through eight. The goal is to enable students to reach grade level in reading. During 1989-90, the program served 284 students from six nonpublic schools. Program staff included a coordinator and eight teachers. Instruction was provided to small groups of about five students, three to five days per week, for sessions lasting from 45 to 60 minutes. Chapter I funding totaled $667,572.

CORRECTIVE MATHEMATICS PROGRAM

The Corrective Mathematics program provided instruction in mathematics. The goals are to deepen students' understanding of mathematical concepts and to improve their ability to perform

computations and solve problems. During 1989-90, the program served 7,771 students attending 160 nonpublic schools. The total included 3,871 students receiving face-to-face instruction and 3,891 students receiving computer-assisted instruction. Program staff included a coordinator, one field supervisor, and 71 Corrective Mathematics program teachers. Instruction was provided to small groups of students, one to five days per week, in sessions ranging from 45 to 60 minutes. Chapter I funding totaled more than $7.4 million.

ENGLISH AS A SECOND LANGUAGE

The English as a Second Language program provides intensive English language instruction to limited English proficient students. The goal of the program is to help students gain the listening, speaking, reading, and writing skills necessary to improve their performance in school. During 1989-90, the program served 3,017 students in kindergarten through eighth grade in 77 nonpublic schools. The total included 2,286 receiving face-to-face instruction, and 731 students receiving computer-assisted instruction. In addition, a Read-Along component provided some students with tape recorders, storybooks, and audio tapes for home use. Program staff included a coordinator, two field supervisors, and 37 teachers. Instruction was provided to small groups of students two to three days a week in sessions ranging from 30 to 60 minutes. Chapter I funding totaled $3.4 million.

CLINICAL AND GUIDANCE PROGRAM

The Clinical and Guidance program provides diagnostic and counseling services to students enrolled in Chapter I nonpublic school programs--Corrective Reading, Reading Skills Center, Corrective Mathematics, and English as a Second Language. The goal of the program is to alleviate emotional or social problems that interfere with the students' ability to profit from remedial education. During 1989-90, the program served 6,203 students from 150 nonpublic schools. The staff included two coordinators, two field supervisors, 62 guidance counselors, 43 psychologists, one psychiatrist, and 21 social workers. Chapter I funding totaled $6.7 million.